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Please return your E-mail information to: Carolyn Brock, The Children's Hospital, Epidemiology – Box B276, 13123 E. 16th Avenue, Aurora, CO 80045 or E-mail address: brock.carolyn@tchden.org .

Thank you for your interest in our publication.

CONTAGIOUS COMMENTS

Department of Epidemiology

Bugs and Drugs 2008

Marti Roe, SM (ASCP), Elaine Dowell, MT, SM (ASCP),
Ann-Christine Nyquist, MD, MSPH, and James K. Todd, MD.

Pharmacy, Epidemiology and Microbiology have collaborated this year to expand the annual Bugs and Drugs antibiogram into a booklet. It will contain:

- Annual TCH antibiogram
- MRSA charts
- Formulary that lists relative antimicrobial costs
- Microbiology Laboratory susceptibility testing protocol
- Most common blood culture organism statistics
- Specimen collection information and more.

The booklet will be available on Planet TCH and may be found on the Pathology Laboratory's webpage, Pharmacy's webpage and the Resident and Fellow webpage. For external customers, the booklet will be available on The Children's Hospital website at <http://www.thechildrenshospital.org/news/publications/cc/index.aspx>. Pocket-sized versions will be sent to all Fellows, Residents and Medical Students with additional copies available through the Microbiology Laboratory. Please give us a call and we will be glad to supply you with a copy.

Clinical Laboratory Standards Institute (CLSI) guidelines are used to prepare our antimicrobial panels and tables. These guidelines recommend reporting of susceptibility rates when 30 or more isolates are available. In some cases, we have needed to combine two years of data to meet this requirement. These data sets are flagged with a footnote at the bottom of each chart. Data has been reported on a small number of isolates that are clinically relevant such as *Shigella spp.* and Group A strep. These data sets are marked with the total number of isolates in parenthesis.

Staphylococcus aureus and coagulase negative staphylococcus isolates have increased in number, but susceptibility rates remain the same. The overall MRSA rate has remained essentially the same. Viridians streptococcus isolates continue to show more resistance to penicillin and other drugs and the number of *S. anginosus* isolates also continues to increase. It is clinically important to note that *S. pneumoniae* has new cutoffs for meningitis versus non-meningitis for penicillin

and for cefotaxime reminding us that it is important to consider the location of the infection and the penetration of antimicrobials into the space as we interpret susceptibilities.

Gram negative bacteria have maintained stable susceptibility patterns with the exception of *Shigella spp.* Although *Shigella* isolates show increased susceptibility to ampicillin and trimethoprim/sulfamethoxazole, this small shift may only reflect currently circulating species over the two years of data reported. ESBL and VRE rates have remained stable in 2008. Updates for new antimicrobial panels for some of the non-Enterobacteriaceae and new Microscan panels will be validated during the year. Please remember that there may be additional susceptibility results available in the laboratory and you are welcome to call and consult with a Microbiologist at any time (720-777-6704).

TABLE 1. Antimicrobial Susceptibilities at The Children's Hospital – 2008

Staphylococcus (% susceptible)								
ORGANISMS	NUMBER OF ISOLATES TESTED	ANTIMICROBIALS						
		Penicillin (IV / PO)	Oxa-/ Naf-/ Diclloxacin (IV / PO)	Cefazolin Cephalixin (IV / PO)	Trimethoprim / Sulfam (IV / PO)	Erythromycin (IV / PO)	Clindamycin (IV / PO)	Vancomycin (IV)
• <i>Staph aureus</i> (MSSA)	422	0	100	100	99	72	83	100
• <i>Staph aureus</i> (MRSA)	385	0	0	0	99	12	74	100
Staph coagulase negative	148		31	31	67	30		100

Testing by Microscan panels – Confirmation of MRSA by PBP2' testing or ChromAgar.

TABLE 2. Antimicrobial Susceptibilities at The Children's Hospital – 2008

Streptococcus (% susceptible)													
ORGANISMS	NUMBER OF ISOLATES	ANTIMICROBIALS											
		Penicillin			Cefotaxime			Erythromycin	Clindamycin	Trimethoprim/Sulfa	Cefotaxime	Ampicillin/ Amoxicillin (IV / PO)	Vancomycin (IV)
		S ≤ 0.06	I = 1	R ≥ 0.12	S ≤ 0.5	I = 1	R ≥ 2						
<i>S. pneumoniae</i> ¹ Meningeal	(5)	60		40	80		20						100
		S ≤ 2	I = 4	R ≥ 8	S ≤ 1	I = 2	R > 4						
<i>S. pneumoniae</i> ¹ Non-meningeal	118	83	15	2	82	11	7	58	78	74			100
		S ≤ 0.12	I 0.25 - 2	R ≥ 4									
Viridans Strep Invasive	33	36	49	15				30	85		79		100
<i>Strep. anginosus</i> ¹ Group Invasive	32	81	19	0				78	91		97		100
Beta Strep Group A	(19)							95	100				
<i>Enterococcus</i> ² <i>faecalis</i>	76											100	100
<i>Enterococcus</i> ² <i>faecium</i>	(18)											95	95
¹ Testing by E-test. ² Testing by Microscan panel.		Gentamicin Synergy Screen – <i>E. faecalis</i> = 78% Susceptible Gentamicin Synergy Screen – <i>E. faecium</i> = 94% Susceptible * One VRE patient											

TABLE 3. Antimicrobial Susceptibilities at The Children's Hospital – 2008

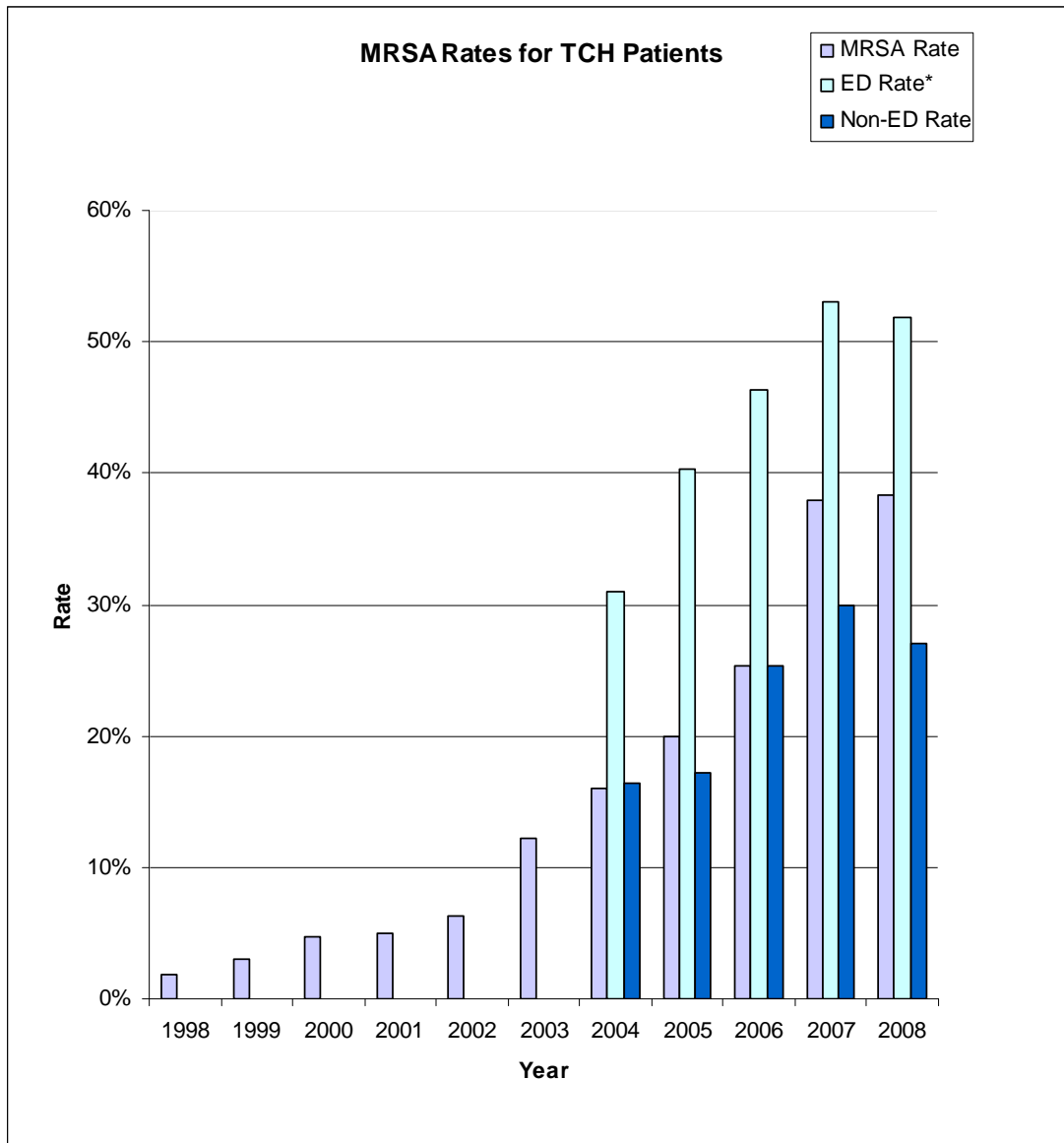
Gram Negative Organisms (% susceptible)									
ORGANISMS	NUMBER OF ISOLATES	ANTIMICROBIALS							
		Ampicillin / Amoxicillin (IV / PO)	Cefazolin / cephalixin (IV / PO)	Cefuroxime (IV / PO)	Cefotaxime/ ceftriaxone (IV)	Gentamicin (IV)	Tobramycin (IV)	Trimethoprim / sulfa (IV / PO)	Ciprofloxacin (IV / PO)
<i>Haemophilus</i> species	32	44			100			81	
<i>E. coli</i>	922	50	95	98	97	91	91	70	91
<i>Enterobacter cloacae</i> (non-urine)	42	R	R	52	76	98	98	79	100
<i>Klebsiella pneumoniae</i>	90	R	89	90	97	96	100	89	100
<i>Klebsiella oxytoca</i>	32	R	38	85	89	100	100	100	100
<i>Proteus mirabilis</i>	33	82	85	94	100	88	88	88	100
<i>Salmonella</i> species	32	78			100			97	
<i>Serratia marcescens</i>	(21)	R	R	0	86	100	100	100	90
<i>Shigella</i> species	(10)	75			100			88	
Testing by Microscan panels (except <i>Haemophilus</i> by E-test) Eleven Isolates identified as ESBL. R = Resistant (Intrinsic) () Small number of isolates									

TABLE 4. Antimicrobial Susceptibilities at The Children's Hospital – 2008

Non-Enterobacteriaceae (% susceptible)											
ORGANISMS	NUMBER OF ISOLATES	ANTIMICROBIALS									
		Ticarcillin/clavulante (IV)	Ceftazidime (IV)	Aztreonam (IV)	Imipenem / Cilastatin (IV)	Ciprofloxacin (IV)	Gentamicin IV	Tobramycin (IV)	Meropenem(IV)	Piperacillin / Tazobactam (IV)	Minocycline (IV)
* <i>Acinetobacter</i> species ¹	(26)		73			88		85	92		
<i>Pseudomonas aeruginosa</i>											
• Non CF ²	95		96	82				100	93	99	
• CF-mucoid ¹	44	51	72	70				75	73		
• CF-nonmucoid ¹	57	40	61	56				71	72		
* <i>Achromobacter xylosoxidans</i> ¹	36	81			69	14			66		
<i>S. maltophilia</i> ¹	(19)	15	10							100	89
¹ Cystic fibrosis isolates by E-test. May include >1 isolate/patient.						* 2005 - 2008 data combined					
² Testing by Microscan panels.						() Small number of isolates					

TABLE 5. Antimicrobial Susceptibilities at The Children's Hospital – 2008

<i>Candida albicans</i> (# of isolates susceptible)				
ORGANISMS	NUMBER OF ISOLATES	ANTIMICROBIALS		
		Fluconazole		
		S ≤ 8	I = 16 - 32	R ≥ 64
<i>Candida albicans</i>	31	31		
Testing by UTHSC at San Antonio 2006-2008 combined				



MRSA Rates for patients seen at TCH between 1998 and 2008. Beginning in 2004, data is separated into ED and Non-ED patients in order to estimate the impact of hospital associated versus community associated MRSA. Surveillance cultures are not included (MRSA screens, CF cultures, BMT stool surveillance).

*ED Includes: Main Campus ED, Urgent Cares, CHC



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